REMARKS

First, the Examiner has objected to the drawings under the requirements and provisions of 37 CFR 1.83(a). More specifically, the Examiner has stated that according to the requirements of 37 CFR 1.83(a) the Figures are required to show two speed sensors immediately adjacent one another as recited in claim 2 and as described, for example, in paragraphs [022] and [032] of the specification, that the speed sensors and the distance sensor are situated in a common housing as recited in claim 23 and as described, for example, in paragraphs [021], [022] and [032] and in Fig. 1 for the implementing using a single speed sensor, and an evaluation device located in the sensor housing, as recited in claim 26, or in a separate control unit, as recited in claim 27, and as described, for example, in paragraphs [032] and [033].

The Applicant wishes to point out that the elements in questions, that is, two adjacent speed sensors, the location of the two speed sensors in a common housing, and the location of an evaluation device located in either the sensor housing or a separate control unit are thereby fully described in the specification and claims as originally filed. In this regard, the Applicant refers to originally filed claims 2, 23, 26 and 27, or their equivalents, which are a part of the original disclosure, and, for example, paragraphs [021] [022], [032] and [033] of the specification and Fig. 1. As such, the illustration of these elements and arrangements in a Figure will not add any new matter to the present Application, but will merely operate to meet the formal requirements of 37 CFR 1.83(a) so long as no more is presented in the Figure than has been originally described in the specification and claims.

In response, therefore, the drawings are amended, per the attached Submission, to overcome the grounds for objection noted by the Examiner and new Replacement Sheets of formal drawing accompany this Submission and incorporate all of the requested drawing amendments. In particular, the Applicant has submitted and amended Fig. 1 and a new Fig. 3 wherein Fig. 1 is directed to the embodiment of the invention employing a single speed sensor 4 while Fig. 3 is directed to an embodiment employing two adjacently located speed sensors 4, which are designated by the reference numbers 4A and 4B. The amended Fig. 1 and the new

Fig. 3 also show an evaluation device 8 located in either the sensor housing 6 or a separate control unit 10. In this regard, it must be noted that the common housing recited in claim 23 and the sensor housing recited in claim 26 are not different elements, but are both, in fact, the sensor housing 6 shown in Fig. 1 and described in paragraph [032} and [021] and that the use of the term "common housing" in place of "sensor housing" is merely an error in nomenclature.

It will also be noted that the Applicant has amended the specification and claims in accordance and agreement with the above amendments to the drawings to provide consistence through the specification, claims and drawings.

It is, therefore, the Applicant's belief and position that the above described amendments to the drawings and the associated amendments to the claims meet and overcome the grounds for objection under 37 CFR 1.83(a) without adding any new matter to the specification, drawings or claims and without altering, modifying or extending the subject matter of the present invention as recited in the claims.

The Applicant therefore respectfully requests that the Examiner enter the amended Fig. 1, the new Fig. 3 and the corresponding amendments to the specification and claims and that the Examiner reconsider and withdraw all objections to the drawings under 37 CFR 1.83(a).

If any further amendment to the drawings is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Next, the Examiner has objected to claims 18, 22, 26, 28, 31, 32, 33 and 34 for certain informalities therein. In response, the Applicant has amended claims 18, 22, 26, 28, 31, 32, 33 and 34 with respect to the informalities indicated by the Examiner. It will be noted that these amendments have not added any new matter to the claims, and have not altered the subject matter or scope of the claims but have operated only to addressed the indicated informalities. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all objections to claims 18, 22, 26, 28, 31, 32, 33 and 34.

The Examiner has also rejected claims 1-35 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement and, in particular, with regard to the

functioning of the distance sensor as recited, for example, in claim 16 and in the specification at, for example, paragraph [032].

The Applicant has reviewed paragraphs [032] through [037] of the specification, which contains the principle discussion of the distance sensor and the operation of the distance sensor, the German language original, and the corresponding descriptions in other parts of the specification, such as in paragraphs [019], [020], 021] and [022] of the specification. As a result of this review, the Applicant has concluded that as a result of the translation of the original disclosure from technical German into technical English, the wording of paragraphs [032] through [037] results in a possibility for a somewhat unclear reading of these paragraphs and thus the corresponding recitations in the claims.

In response to the rejection of the claims under 35 U.S.C. § 112, first paragraph, therefore, the Applicant herein above submits an amended version of paragraphs [032] through [037] that has taken into account the content and meaning of the original German language version of paragraphs [032] through [037] and the content and meaning of the original German language version and the translated English version of other, related paragraphs of the specification, such as paragraphs [019], [020], 021] and [022]. It will be noted that the amended version of paragraphs [032] through [037] does not add any new subject matter and does not alter or extend in any way the content or meaning of the specification or claims and is fully supported by the original German language disclosure and the other, related parts of the specification and drawings, such as paragraphs [019], [020], 021] and [022].

Stated briefly, and as expressed in amended paragraphs [032] through [037] as supported by the original German language disclosure and the other, related parts of the specification and drawings, such as paragraphs [019], [020], 021] and [022], the speed measuring system of the present invention includes a single speed sensor 4 or a pair of speed sensors 4A/4B that magnetically detect and indicate the direction and rotational speed of toothing 2 on a toothed disk 1. As discussed with regard to the prior art speed measuring systems, however, and even through the air gap distance between the speed sensor 4, 4A/4B and the toothed disk 1 can be initially fixed, the actual air gap distance between the speed

sensor 4, 4A/4B and the toothed disk 1 will vary with time and with the rotation of the toothed disk 1. The amplitude of a speed output signal from the speed sensor 4, 4A/4B will be effected by and will vary with the actual air gap distance between the speed sensor and the toothed disk 1, thereby causing errors in the speed output signal from the speed sensor 4, 4A/4B.

According to the present invention, the speed measuring system also includes a distance sensor 5 that is axially spaced next to the speed sensor(s) 4, 4A/4B, that is, is adjacent to speed sensor 4, 4A/4B and at approximately the same axial distance from toothed disk 1, for determining the actual distance between the distance sensor 5 and a distance measuring surface 3 on the toothed disk 1. Since the distance sensor 5 is adjacent to the speed sensor 4, 4A/4B, the actual distance between the speed sensor 4, 4A/4B and the toothed disk 1 is the same as the actual distance, that is, the air gap distance, between speed sensor 4, 4A/4B and the toothed disk 1, as the actual distance between distance sensor 5 and the toothed disk 1.

As described, the distance sensor 5 scans the distance measuring surface 3 on the toothed disk 1 to determine the distance between the distance sensor 5 and the distance measuring surface 3 on the toothed disk 1 and thus the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1. The distance sensor 5 thereby provides a distance output signal indicating the distance between the distance sensor 5 and the distance measuring surface 3 and thus the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1.

In this regard, and as will be obvious to those of ordinary skill in the arts, changes over time in the distance between the distance sensor 5 and the distance measuring surface 3 will result in corresponding changes in the distance output signal, thereby representing changes in the distance between the distance sensor 5 and the distance measuring surface 3 and thus changes in the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1. As a result, the distance sensor 5 will determine and indicate, by its distance output signal, both the distance between the distance sensor 5 and the distance measuring surface 3 and changes in the distance between the distance sensor 5 and the distance measuring surface 3

and thus both the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1 and changes in the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1.

The output signal of the distance sensor 5 is then used in evaluating the output signal of the speed sensor 4, 4A/4B and, in particular and as described in paragraphs [034] through [039], to adjust the maximum and minimum speed amplitude release thresholds accordingly as the air gap, as measured by the distance sensor 5, increases or decreases.

It will be noted that the Applicant has amended the recitations of the claims as well as the language of paragraph [032] through [037] to more clearly reflect the above, and the Applicant, therefore, respectfully requests that the Examiner reconsider the withdraw the rejections of claims 1-35 under 35 U.S.C. § 112, first paragraph.

Next considering the rejections of the claims over the cited prior art, the Examiner has rejected claims 16, 20, 21 and 28-30 35 U.S.C. § 102(b), as being anticipated by Seitzer et al. `367.

The Examiner has also rejected claims 17, 24-26 and 31 under 35 U.S.C. § 103(a) over Seitzer et al. `367 in view of Teramae et al. `308, claims 18 and 32 under 35 U.S.C. § 103 over Seitzer et al, `367 in view of Applicant's Admitted Prior Art 9AAPA), claims 19 and 27 under 35 U.S.C. § 103(a) over Seitzer et al. `367 in view of Bleckmann et al. `297, claims 22 and 23 under 35 U.S.C. § 103(a) over Seitzer et al. `367 in view of Wallrafen `662, claim 33 under 35 U.S.C. § 103(a) over Seitzer et al. `367 in view of Applicant's Admitted Prior Art (AAPA) and in further view of Teramae et al. `308, and claims 34 and 35 under 35 U.S.C. § 103(a) over Seitzer et al. `367 in view of Applicant's Admitted Prior Art (AAPA) and in further view of Teramae et al. `308 and in further view of Bleckmann et al. `297.

The Applicant acknowledges and respectfully traverses the raised anticipatory and obviousness rejections in view of the following remarks. In this regard, it must be noted that the following discussions are considered by the Applicant to be in addition to and in extension of the discussions and arguments present in the Response of June 21, 2005 to the Official Action of March 22, 2005. The Applicant expressly reserves and retains those arguments and discussions, without any admission or concession with regard thereto, and

respectfully requests that those previously presented arguments and discussions be regarded as incorporated herein by reference.

First considering the present invention as recited in independent claims 16, 31 and 32 as amended herein above, and as expressed in amended paragraphs [032] through [037] and amended Figs. 1 and 3, as supported by the original German language disclosure and the other, related parts of the specification and drawings, such as paragraphs [019], [020], 021] and [022], the speed measuring system of the present invention includes a single speed sensor 4 or a pair of speed sensors 4A/4B located at a first selected air gap distance from a toothed disk 1 to magnetically detect and indicate the direction and rotational speed of toothing 2 on the toothed disk 1.

The speed measuring system also includes a distance sensor 5 that is axially spaced next to the speed sensor(s) 4, 4A/4B, that is, is adjacent to speed sensor 4, 4A/4B and at approximately the same axial distance from toothed disk 1, for determining the actual distance between the distance sensor 5 and a distance measuring surface 3 on the toothed disk1. The distance sensor 5 scans the distance measuring surface 3 on the toothed disk 1 to determine the distance between the distance sensor 5 and the distance measuring surface 3 on the toothed disk 1 and thus the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1 and provides a distance output signal indicating the distance between the distance sensor 5 and the distance measuring surface 3 and thus the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1. The distance output signal of the distance sensor 5 indicate both the distance between the distance sensor 5 and the distance measuring surface 3 and changes in the distance between the distance sensor 5 and the distance measuring surface 3 and thus both the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1 and changes in the air gap distance between speed sensor 4, 4A/4B and the toothed disk 1.

The output signal of the distance sensor 5 is then used in evaluating the output signal of the speed sensor 4, 4A/4B to adjust the maximum and minimum speed amplitude release

thresholds accordingly as the air gap, as measured by the distance sensor 5, increases or decreases.

Having discussed the present invention, therefore, the following will next consider the prior art cited by the Examiner, that is, Seitzer et al. `367, Teramae et al. `308, Applicant's Admitted Prior Art (AAPA), Bleckmann et al. `297, and Wallrafen `662.

First considering the Applicant's Admitted Prior Art (AAPA), which the Examiner identifies as the AAPA comprising the discussion in paragraph [008] in the Background of the Invention, and states that this discussion teaches generating or issuing an actual speed output signal having a value greater than zero only when the speed output signal of the speed sensor is larger than a lower limiting value, as recited in the correspondingly rejected claims.

The Applicant respectfully disagrees with the Examiner's interpretation of the teachings of the AAPA.

A careful reading of the AAPA shows that this discussion refers to a method for improving the quality of a speed measurement signal in the lower speed ranges by evaluating information pertaining to the differential gradient, that is, the slope, of the waveform of the speed signal instead of the frequency of the speed sensor output signal. The prior art reference considered in the AAPA states that the distance between the measuring body and the speed sensor changes periodically, that is, as some element of the measuring body approaches or recedes from the location of the speed sensor as the measuring body rotates. This effect will be apparent from considering the apparent approach and withdrawal of an element, such as a magnet, on the edge of a rotating body with respect to a sensor located near the edge of the rotating body.

The AAPA further states that the steepness of the waveform of the output signal from the speed sensor is dependent upon the speed of the measuring body and that the rising and falling edges of the waveform become steeper as the speed of the measuring body increases and less steep as the speed of the measuring body decreases. This effect will again be apparent as a point on the edge of a rotating body will appear to approach to and recede from a sensor located near the edge of the rotating body at a faster or slower rate as the speed of

rotation of the rotating body increases decreases. It will also be understood that a higher rate of revolution will result in a higher frequency signal and that a higher frequency signal will have a steeper edge to the waveform than will a lower frequency signal that results from a lower rate of revolution.

The AAPA reference under consideration further states that the signal generated by the speed sensor is not only frequency dependent, but has a lower limiting frequency, that is, the sensor will apparent not generate a signal below the lower limiting frequency, which is not uncommon with sensors of various forms. The reference also indicates that the approach and withdrawal path of the element on the measuring body will result in errors in the signal due to geometric factors for speeds above an upper limit, but that for measuring body speeds, that is, signal frequencies, below that upper limit the edge steepness of the waveform reflects the actual speed of the measuring body.

For these reasons, an evaluation unit determines the edge steepness of the distance signal, which is proportional to the signal frequency and the speed of the measuring body, and generates an output that represents the differential of the distance signal, that is, represents the edge steepness of the distance signal waveform, only when the edge steepness represents a distance signal having a frequency between the lower and upper limits defined above.

It will be apparent from the above discussion of the present invention, and from the recitations of independent claims 16, 31 and 32, however, that the measuring system of the present invention does not detect or employ the differential "steepness" of the edge of the speed signal. In fundamental contrast from the teachings of the AAPA, the measuring system of the present invention detects and employs the amplitude of the speed signal.

In further fundamental distinction between the measuring system of the present invention and the teachings of the AAPA, the system described in the AAPA includes only speed sensors and attempts to obtain all information necessary for determining the speed of the measuring body from the speed signals generated by the speed sensors and, in particular in the case of the AAPA, from the shape, that is, the slope, of the speed signals. The system described in the AAPA does not even attempt to determine the actual air gap distance between

the sensors and the encoder, or to use the actual air gap distance when evaluating the speed signals, but instead merely attempts to construct a system that is tolerant of variations in the air gap distance.

In complete contrast from the AAPA, the measuring system of the present invention as recited in claims 16, 31 and 32 includes not only a speed sensor or speed sensors, but further includes a distance sensor that is located with but separate from the speed sensor(s) for detecting the actual physical distance between the distance sensor and the speed sensor and the measurement disk and for generating a distance output signal representing the actual distance between the speed sensor and the measuring disk. The measuring system of the present invention then uses the distance output signal to evaluate the speed signal to obtain a more accurate speed determination.

The system described in the AAPA, however, does not include any form of distance sensor separate from the speed sensors, does not attempt to determine the actual distance between the speed sensor and the measuring body, and does not use a distance signal in evaluating the speed signal. In fact, the system described in the AAPA does not consider the effects of variations in the distance between the speed sensors and the measuring body at all, but will instead generate an accurate speed output only when there are no variations in the distance between the speed sensor(s) and the measuring body.

It is therefore the position of the Applicant that the present invention as recited in independent claims 16, 31 and 32 is completely and fundamentally distinguished over and from the teachings of the AAPA under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 and that the APA does not in fact contain any teachings pertinent to the present invention.

Next considering Seitzer et al. `367, Seitzer et al. `367 describes a speed detection device for detecting the speed and direction of rotation of an object. The system employs a magnetic field generating mechanism comprised of magnetic elements on the periphery of the rotating object and a pair of magnetic field sensors and to detect phase and amplitude of the

magnetic field of the rotating object and to thereby determine the rate and direction of motion of the rotating object.

In fundamental distinction between the measuring system of the present invention and the teachings of Seitzer et al. `367, the system described in the Seitzer et al. `367 includes only speed sensors and attempts to obtain all information necessary for determining the speed of the measuring body from the speed signals generated by the speed sensors. Seitzer et al. '367 does not even attempt to determine the actual air gap distance between the sensors and the encoder, or to use the actual air gap distance when evaluating the speed signals.

In complete contrast from Seitzer et al. `367, the measuring system of the present invention as recited in claims 16, 31 and 32 includes not only a speed sensor or speed sensors, but further includes a distance sensor that is located with but separate from the speed sensor(s) for detecting the actual physical distance between the distance sensor and the speed sensor and the measurement disk and for generating a distance output signal representing the actual distance between the speed sensor and the measuring disk. The measuring system of the present invention then uses the distance output signal to evaluate the speed signal to obtain a more accurate speed determination.

The system described in Seitzer et al. `367, however, does not include any form of distance sensor separate from the speed sensors, does not attempt to determine the actual distance between the speed sensor and the measuring body, and does not use a distance signal in evaluating the speed signal. In fact, the system described in Seitzer et al. `367 does not consider the effects of variations in the distance between the speed sensors and the measuring body at all, but will instead generate an accurate speed output only when there are no variations in the distance between the speed sensor(s) and the measuring body.

It is therefore the position of the Applicant that the present invention as recited in independent claims 16, 31 and 32 is completely and fundamentally distinguished over and from the teachings of Seitzer et al. `367 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 and that Seitzer et al. `367 does not, in fact, contain any teachings pertinent to the present invention.

Next considering Teramae et al. `308, Teramae et al. `308 describes a speed measuring system wherein an oscillator drives a sensing coil with a resonant current that is, in turn, amplitude modulated by the magnetic fields of a plurality of magnetic elements mounted on the periphery of a rotating wheel. The Teramae et al. `308 system then detects the amplitude modulation of the current through the sensing coil and generates pulses at a rate determined by the speed of rotation of the wheel. The Teramae et al. `308 system also senses the amplitude of the resonant frequency component of the detected signal and control the amplitude of the oscillator signal driving the coil to keep the amplitude within defined limits, thereby compensating for the effects on the modulated component of varying distances between the coil and the wheel.

In fundamental distinction between the measuring system of the present invention and the teachings of Teramae et al. `308, the system described in the Teramae et al. `308 includes only speed sensors and attempts to obtain all information necessary for determining the speed of the measuring body from the speed signal generated by the speed sensors. Teramae et al. '308 does not even attempt to determine the actual air gap distance between the sensors and the encoder, or to use the actual air gap distance when evaluating the speed signals.

In complete contrast from Teramae et al. `308, the measuring system of the present invention as recited in claims 16, 31 and 32 includes not only a speed sensor or speed sensors, but further includes a distance sensor that is located with but separate from the speed sensor(s) for detecting the actual physical distance between the distance sensor and the speed sensor and the measurement disk and for generating a distance output signal representing the actual distance between the speed sensor and the measuring disk. The measuring system of the present invention then uses the distance output signal to evaluate the speed signal to obtain a more accurate speed determination.

The system described in Teramae et al. `308, however, does not include any form of distance sensor separate from the speed sensors, does not attempt to determine the actual distance between the speed sensor and the measuring body, and does not use a distance

signal in evaluating the speed signal, but instead attempts to extract distance information from only the speed detector signal.

It is therefore the position of the Applicant that the present invention as recited in independent claims 16, 31 and 32 is completely and fundamentally distinguished over and from the teachings of Teramae et al. `308 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 and that Teramae et al. `308 does not in fact contain any teachings pertinent to the present invention.

Next considering Bleckmann et al. `297, Bleckmann et al. `297 describes an "active" rotations sensing system wherein magnetic encoder elements on the periphery of a rotating wheel induce an alternating waveform in a sensor with the induced alternating waveform indicating the speed of rotation of the wheel. Bleckmann et al. `297 determines whether the air gap between the encoder and the sensor is within acceptable limits, so that maximum and minimum amplitudes of the induced waveform are within acceptable limits, by altering the detection threshold of the waveform to represent a greater air gap with the actual air gap being within acceptable limits if the amplitude of the waveform is within acceptable limits at the simulated greater air gap.

In fundamental distinction between the measuring system of the present invention and the teachings of Bleckmann et al. `297, the system described in the Bleckmann et al. `297 includes only a speed sensor and attempts to obtain all information necessary for determining the speed of the measuring body from the speed signal generated by the speed sensor. Bleckmann et al. '297 does not even attempt to determine the actual air gap distance between the sensors and the encoder, or to use the actual air gap distance when evaluating the speed signals, but instead merely attempts to construct a system that is tolerant of variations in the air gap distance.

In complete contrast from Bleckmann et al. `297, the measuring system of the present invention as recited in claims 16, 31 and 32 includes not only a speed sensor or speed sensors, but further includes a distance sensor that is located with but separate from the speed sensor(s) for detecting the actual physical distance between the distance sensor and the speed sensor

and the measurement disk and for generating a distance output signal representing the actual distance between the speed sensor and the measuring disk. The measuring system of the present invention then uses the distance output signal to evaluate the speed signal to obtain a more accurate speed determination.

The system described in Bleckmann et al. `297, however, does not include any form of distance sensor separate from the speed sensors, does not attempt to determine the actual distance between the speed sensor and the measuring body, and does not use a distance signal in evaluating the speed signal. In fact, Bleckmann et al. `297 does not even attempt to determine the air gap distance during operation of the sensor at all, but instead merely attempts to determine whether the initially set air gap distance is within acceptable limits by inducing a test condition representing a maximum possible air gap and determining whether, under these initial test conditions, the received speed signal is acceptable.

It is, therefore, the position of the Applicant that the present invention as recited in independent claims 16, 31 and 32 is completely and fundamentally distinguished over and from the teachings of Bleckmann et al. `297 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 and that Bleckmann et al. `297 does not, in fact, contain any teachings pertinent to the present invention.

Next considering Wallrafen `662, Wallrafen `662 describes a system for determining the speed of rotation of a machine part having a magnetic encoder in the periphery of the part by using two sensors to detect the phase shifted magnetic field or fields generated by the rotating encoder and combining the phase shifted signals from the sensors to generate a speed signal having a frequency that is a multiple of the sensed signals. According to Wallrafen `662, the combining of the phase shifted signals from the two sensors to generate a higher frequency signal increases the resolution of the system and the system is less effected by variations in the air gap distance between the sensors and the rotating encoder.

In fundamental distinction between the measuring system of the present invention and the teachings of Wallrafen `662, the system described in the Wallrafen `662 includes only a pair of speed sensors and attempts to obtain all information necessary for determining the speed

of the rotating encoder from the speed signals generated by the speed sensors. In addition, Wallrafen `662 does not even attempt to determine the actual air gap distance between the sensors and the encoder, or to use the actual air gap distance when evaluating the speed signals, but instead merely attempts to construct a system that is tolerant of variations in the air gap distance.

In complete contrast from Wallrafen `662, the measuring system of the present invention as recited in claims 16, 31 and 32 includes not only a speed sensor or speed sensors, but further includes a distance sensor that is located with, but separate from the speed sensor(s) for detecting the actual physical distance between the distance sensor and the speed sensor and the measurement disk and for generating a distance output signal representing the actual distance between the speed sensor and the measuring disk. The measuring system of the present invention then uses the distance output signal to evaluate the speed signal to obtain a more accurate speed determination.

The system described in Wallrafen `662, however, does not include any form of distance sensor separate from the speed sensors, does not attempt to determine the actual distance between the speed sensor and the measuring body, and does not use a distance signal in evaluating the speed signal. In fact, Wallrafen `662 does not even attempt to determine the air gap distance during operation of the sensor at all, or to use an actual air gap distance in evaluating the speed signal. Wallrafen `662 instead merely attempts to determine whether the initially set air gap distance is within acceptable limits by inducing a test condition representing a maximum possible air gap and determining whether, under these initial test conditions, the received speed signal is acceptable.

It is therefore the position of the Applicant that the present invention as recited in independent claims 16, 31 and 32 is completely and fundamentally distinguished over and from the teachings of Wallrafen `662 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 and that Wallrafen `662 does not in fact contain any teachings pertinent to the present invention.

Lastly considering Schroeder Publication No. US 2002/0171416 and U.S. Patent No. 6,100,682 to Schroeder, hereafter referred to jointly as "Schroeder `416" and "Schroeder '682", these references were cited by the Examiner as pertinent, but not in rejection of any of the claims, either alone or in combination with the prior art references discussed above.

Schroeder '682 describes a system for measuring the angular rotation of a ferro-magnetic target wheel having peripheral teeth and slots to generate angularly variable magnetic fields and a sensor employing three magnetic detectors to generate respectively signals detecting the phase crossover relationships among the sensors to thereby determine the direction and speed of rotation of the target wheel. Schroeder `416, in turn, describes a sensor having a plurality of selectable arrangements of sensing elements.

In fundamental distinction between the measuring system of the present invention and the teachings of Schroeder `416 and Schroeder '682, the system described in Schroeder `416 and Schroeder '682 includes only speed sensors and attempts to obtain all information necessary for determining the speed of the rotating target wheel from the speed signals generated by the speed sensors, and in particular from the phase relationships of the speed signals from multiple sensors. In addition, Schroeder `416 and Schroeder '682 do not even attempt to determine the actual air gap distance between the sensors and the target wheel, or to use the actual air gap distance when evaluating the speed signals or their phase relationships.

In complete contrast from Schroeder `416 and Schroeder '682, the measuring system of the present invention as recited in claims 16, 31 and 32 includes not only a speed sensor or speed sensors, but further includes a distance sensor that is located with but separate from the speed sensor(s) for detecting the actual physical distance between the distance sensor and the speed sensor and the measurement disk and for generating a distance output signal representing the actual distance between the speed sensor and the measuring disk. The measuring system of the present invention then uses the distance output signal to evaluate the speed signal to obtain a more accurate speed determination.

The system described in Schroeder `416 and Schroeder '682, however, does not include any form of distance sensor separate from the speed sensors, does not attempt to determine the actual distance between the speed sensor and the target wheel, and does not use a distance signal in evaluating the speed signals or their phase relationships. In fact, Schroeder 1416 and Schroeder '682 do not even attempt to determine the air gap distance during operation of the sensor at all, or to use an actual air gap distance in evaluating the speed signals or their phase relationships.

It is, therefore, the position of the Applicant that the present invention as recited in independent claims 16, 31 and 32 is completely and fundamentally distinguished over and from the teachings of Schroeder `416 and Schroeder '682 under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103 and that Schroeder `416 and Schroeder '682 do not, in fact, contain any teachings pertinent to the present invention.

It is, therefore, apparent from the above discussions of the cited prior art references, Seitzer et al. `367, Teramae et al. `308, Applicant's Admitted Prior Art (AAPA), Bleckmann et al. `297, Wallrafen `662, Schroeder `416 and Schroeder '682, that none of the prior art references include any form of distance sensor separate from the speed sensors, none even attempt to determine the actual distance between the speed sensor and the rotating measuring body, and none use any form of distance signal in evaluating the speed signals or their phase relationships.

In addition, and because none of the prior art references contain any of the essential teachings of the present invention as discussed herein above, there is no combination of prior art references that do or could teach of suggest the present invention to those of ordinary skill in the arts under the requirements and provisions of 35 U.S.C. § 103.

It is, therefore, the belief and position of the Applicant that for the reasons discussed above the present invention as recited in independent claims 16, 31 and 32 is fully and patentably distinguished over and from the teachings and suggestions of Seitzer et al. `367, Teramae et al. `308, Applicant's Admitted Prior Art (AAPA), Bleckmann et al. `297,

Wallrafen `662, Schroeder `416 and Schroeder '682, taken individually and in any combination, under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 16, 31 and 32 under either or both of 35 U.S.C. § 102 and 35 U.S.C. § 103 over Seitzer et al. `367, Teramae et al. `308, Applicant's Admitted Prior Art (AAPA), Bleckmann et al. `297, Wallrafen `662, Schroeder `416 and Schroeder '682, taken individually or in any combination, and the allowance of claims 16, 31 and 32 as amended herein above.

In addition, it must be noted that claims 17 - 30 and 33 - 35 are dependent from claims 16, 31 and 32 and thereby incorporate all limitations and recitations of claims 16, 31 and 32 by dependency therefrom. As a consequence, claims 17 - 30 and 33 - 35 are, likewise, fully and patentably distinguished over and from the teachings and suggestions of Seitzer et al. `367, Teramae et al. `308, Applicant's Admitted Prior Art (AAPA), Bleckmann et al. `297, Wallrafen `662, Schroeder `416 and Schroeder '682, taken individually and in any combination, under the requirements and provisions of 35 U.S.C. § 102 and 35 U.S.C. § 103, for the reasons discussed above.

The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 17 - 30 and 33 - 35 under either or both of 35 U.S.C. § 102 and 35 U.S.C. § 103 over Seitzer et al. `367, Teramae et al. `308, Applicant's Admitted Prior Art (AAPA), Bleckmann et al. `297, Wallrafen `662, Schroeder `416 and Schroeder '682, taken individually or in any combination, and the allowance of claims 17 - 30 and 33 - 35 as amended herein above.

In view of the above amendments and remarks, it is respectfully submitted that all of the raised rejection(s) should be withdrawn at this time. If the Examiner disagrees with the Applicant's view concerning the withdrawal of the outstanding rejection(s) or applicability of the Seitzer et al. `367, Teramae et al. `308, Bleckmann et al. `297 and Wallrafen `662 references, the Applicant respectfully requests the Examiner to indicate the specific passage or passages, or the drawing or drawings, which contain the necessary teaching, suggestion and/or disclosure

required by case law. As such teaching, suggestion and/or disclosure is not present in the applied references, the raised rejection should be withdrawn at this time. Alternatively, if the Examiner is relying on his/her expertise in this field, the Applicant respectfully requests the Examiner to enter an affidavit substantiating the Examiner's position so that suitable contradictory evidence can be entered in this case by the Applicant.

In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

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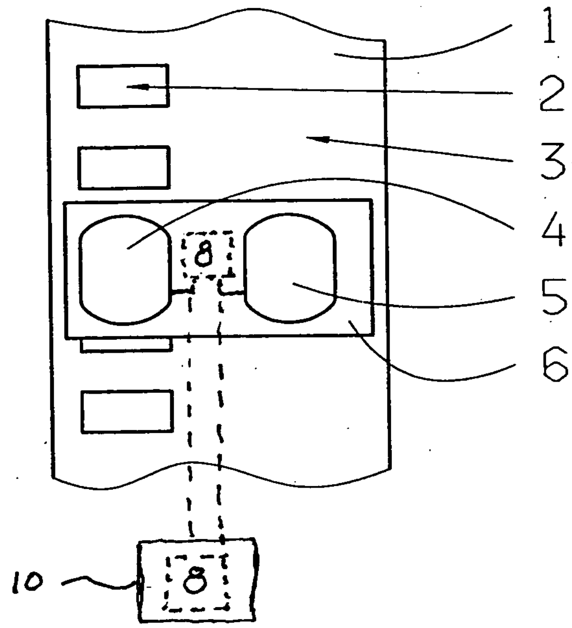

Fig. 1

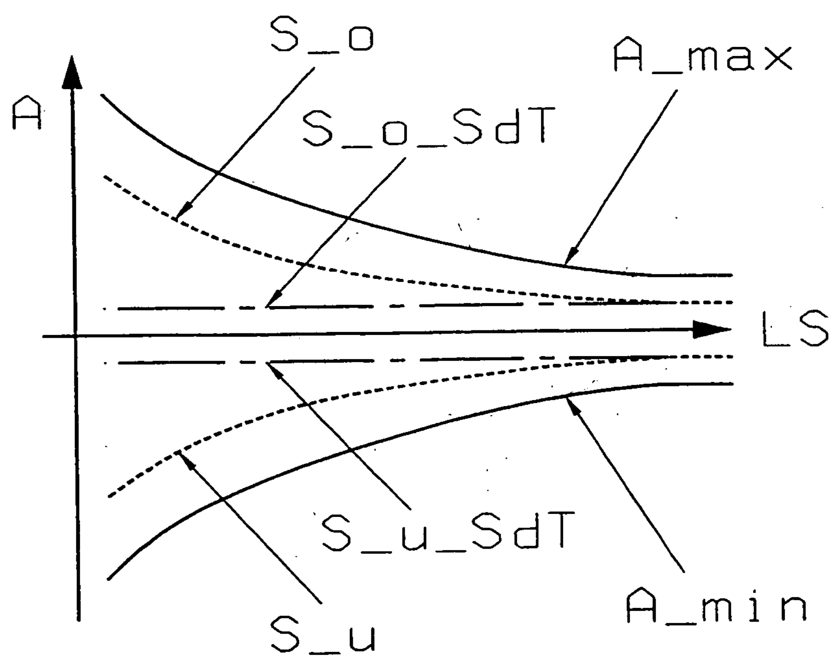

Fig. 2

as filed
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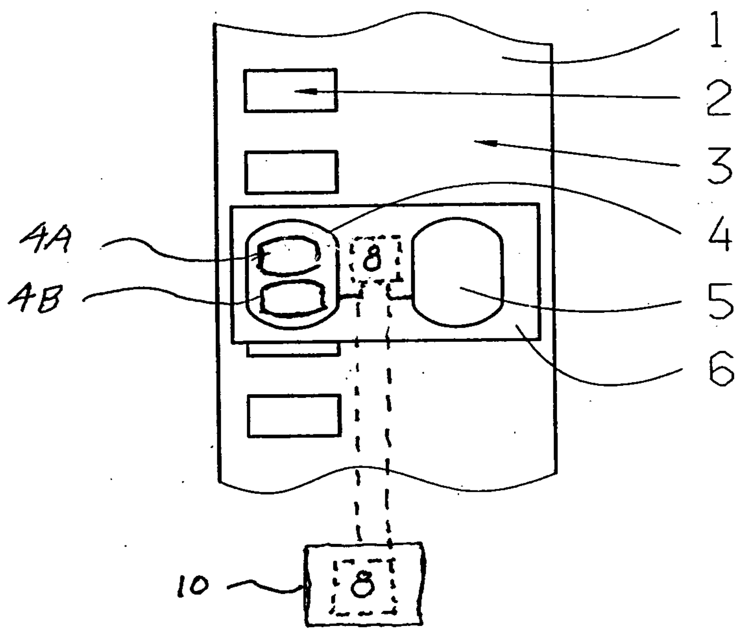

Fig. 3